



The Impact of Substance Use and Violence/Delinquency on Academic Achievement For Groups of Middle and High School Students in Washington

*Summary of a Report by Washington Kids Count
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Little is known about how aspects of the social environment affect academic achievement among *groups of students*. In this study we examined the associations among substance use, violent/delinquent behavior, and academic achievement (as indicated by test scores) in groups of middle school and high school students. We also looked at the effects of poverty and several risk-and-protective factors. Within each school, we defined groups according to grade, gender, and racial/ethnic identity.

Major Findings

Groups of middle and high school students with even *moderate* involvement with substance use and violence/delinquency have dramatically lower academic achievement than groups of students with little or no involvement in these behaviors. Moderate substance use and/or violence/delinquency were associated with test scores a full level below scores of groups of students not involved in these behaviors. These findings take into account important factors such as gender, race-ethnicity, and poverty. [See Figures 1 and 2, below and on the following page.]

These findings are important because 20 to 40 percent of middle school and high school students report involvement with substance use and/or violence/delinquency. Large-scale prevention programs will be necessary if we expect most students to achieve our state's learning goals. To improve academic achievement we must address *both attitudes and behaviors* related to substance use and violence/delinquency. Our efforts should be broad-based, engaging the community and looking at risk-and-protective factors outside the classroom. Intervention needs to start when students are young and continue through high school.

Figure 1. High School: Groups of Students with Low Substance Use and Violent/Delinquent Behavior Have Higher Academic Achievement

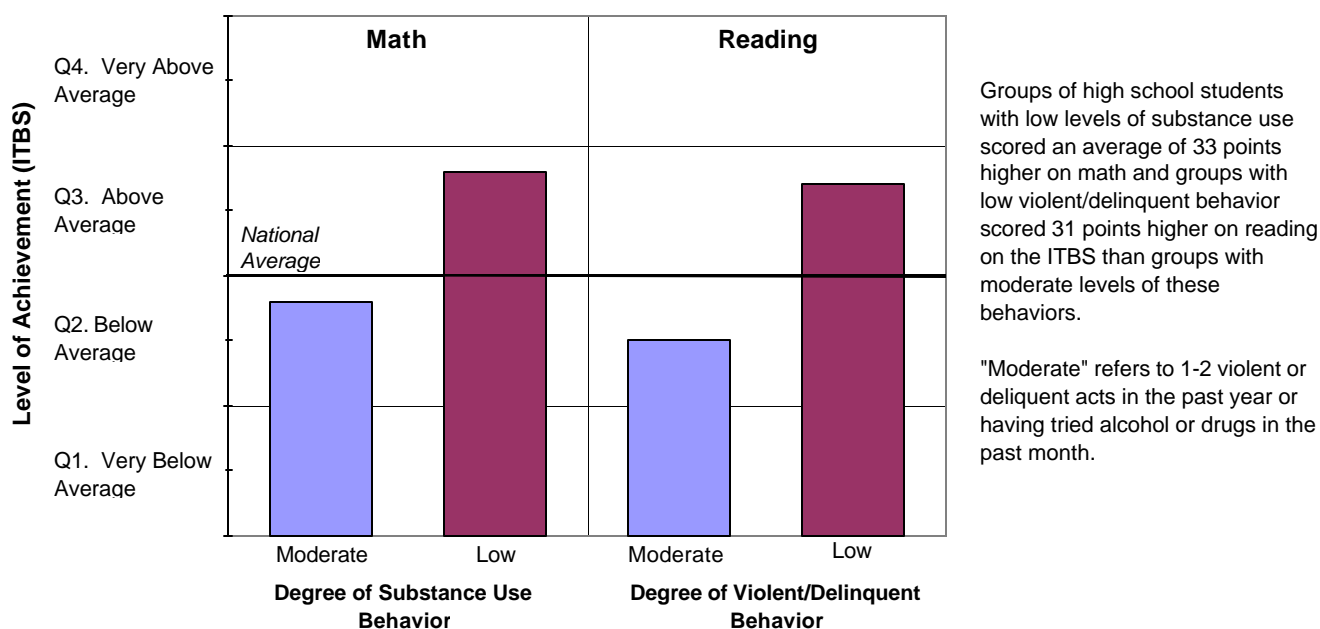
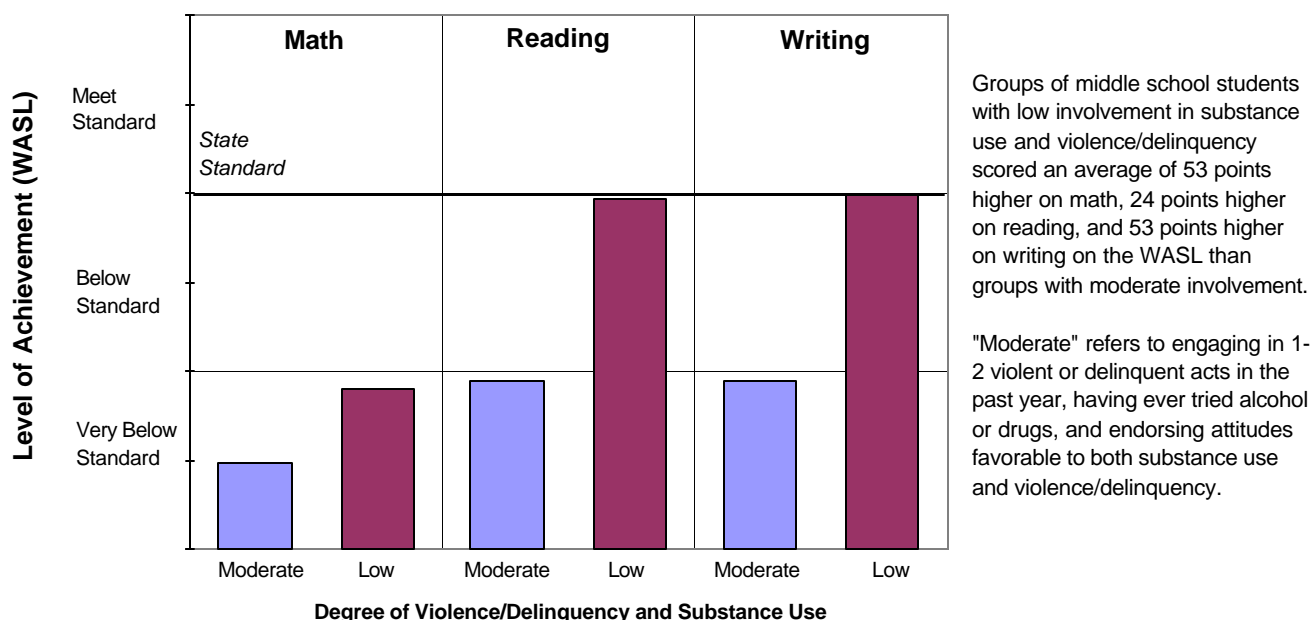


Figure 2. Middle School: Groups of Students with Low Violence/Delinquency and Substance Use (Attitudes and Behaviors) Have Higher Academic Achievement



To be effective, comprehensive prevention strategies must start before middle school and carry through high school, and they need to focus on groups as well as individuals. Interventions to counter substance use and violence/delinquency frequently take place in a classroom setting, so information about group behavior should help us to design and target appropriate prevention modules.

Data Sources

Measures: To conduct this analysis, we combined, for middle school: (a) group data from the 6th grade on student behaviors, attitudes, and risk-and-protective factors from the 1998 Washington State Survey of Adolescent Health Behaviors (WSSAHB) with (b) group averages for 7th graders on the 1999 Washington Assessment of Student Learning (WASL). For high school, we combined: (a) 10th grade group data from the 1998 WSSAHB with (b) 11th grade group averages on the Iowa Test of Basic Skills (ITBS).

Groups: Within schools we defined groups by grade level, gender, and race/ethnicity. We obtained data for 117 groups from 71 middle schools that included both 6th and 7th grades, and 174 groups from 72 high schools. Our groups ranged in size from 15 to 202 students. We insisted upon a minimum of 15 students per group so that outlying scores would not artificially skew the group averages. The distributions of race/ethnic and poverty characteristics in our groups are generally representative of the student population in Washington State.

Poverty and School Resources: We also used data from the Office of the Superintendent of Public Instruction (OSPI) on the percentage of low-income students in each school, as measured by eligibility for the free or reduced-price lunch program, and on the financial and teacher resources available in each school.

What Affects Whether Groups of Students Get Involved With Substance Use and Violence/Delinquency?

Attitudes and Behaviors Are Closely Related.

We found that for groups of *middle school students*, behavior and attitudes about harmful behaviors are tightly linked (correlation = 0.96). That is, the same groups that think it's OK to use alcohol or drugs, know where to obtain them, and think they are unlikely to get caught, are also using them. Similarly, groups of middle school students with antisocial and rebellious attitudes are also involved in violent/delinquent behaviors (correlation = 0.91). For our groups of middle school students, therefore, we combined the attitudinal and behavioral components of the WSSAHB into factors called "Substance Use Involvement" and "Violence/Delinquency Involvement."

In high school, behaviors and attitudes are closely related, but not identical, constructs, so we did not combine them in our analyses. Still, groups with favorable attitudes towards high-risk behaviors tend to engage in these behaviors.

Substance Use Is Closely Related to Violence/Delinquency.

For groups of middle school students, substance use involvement and violence/delinquency involvement are highly correlated ($r = 0.81$). That is, groups with high-risk attitudes and behaviors related to violence/delinquency also have high-risk attitudes and behaviors related to substance use. The strong association between these factors suggests that any attempt to reduce substance use in a group of students are also likely to reduce violence/delinquency for that group – and enhance academic achievement. (Similarly, attempts to reduce violence/delinquency are also likely to reduce substance use and boost school performance.)

Among groups of high school students, violent/delinquent behavior and substance use are somewhat correlated ($r = 0.29$). Groups of students who engage in substance use also tend to engage in violent/delinquent behavior, but the relationship does not always hold: several groups engage in one behavior and not the other. Still, the fact that these behaviors are linked suggests that prevention programs should address violence/delinquency and substance use in concert.

Poverty Is a Potent Factor That Influences Student Behavior, Attitudes, and Academic Achievement.

The percentage of low-income students in a school directly affects test scores. Poverty also increases levels of community risk, which is linked to harmful behaviors and lower achievement. We found evidence of these poverty effects for both middle and high school students. *However, even when the effects of poverty are accounted for, groups that are more involved with substance use or violence/delinquency have significantly lower test scores.*

School Resources Do Not Predict Substance Use, Violence/Delinquency, or Test Scores.

We compiled data on key resources for each school (such as programmatic spending per pupil, student-to-teacher ratio, and staff spending per pupil). These school resource variables did not predict substance use, violence/delinquency, or test scores. This finding is consistent with other analyses that have shown little relationship between school spending and achievement. We did not assess spending at the district level, but district spending has been shown to affect test scores (State of Washington's Children, 2001).

Risk-and-Protective Factors Influence Test Scores, Substance Use, and Violence/Delinquency.

In this study, we also asked:

- (a) Whether risk-and-protective factors affected test scores directly (regardless of harmful behaviors); or
- (b) Whether risk-and-protective factors affected test scores by increasing the likelihood that groups of students would engage in substance use and violence/delinquency.

In addressing this important question we examined three important aspects of risk and protection: *Social and Moral Understanding*, *Perceived Community Risk*, and *School Commitment*. [See Figure 4 on following page.]

Figure 4: Components of Risk-and-Protective Factors

<i>Social and Moral Understanding</i>	
Moral Beliefs	Think it is acceptable to do things such as: cheat at school; take things without asking; be dishonest with parents.
Social Skills	Ability to deal with difficult situations such as where friends are stealing; or urging substance use; or other teenagers are starting a conflict.
<i>Community Risk</i>	
Community disorganization	Presence of crime, drug selling, and abandoned buildings.
Neighborhood attachment	Like the neighborhood; would miss it if moved away.
<i>School Commitment</i>	
	Feelings about school such as: believe assignments/topics are not meaningful or important in later life; hate being in school; skip attending.

Middle School: For groups of middle school students, test scores were not directly linked to risk-and-protective factors. However, risk-and-protective factors did impact substance use and involvement with violence/delinquency, which in turn impacted test scores.

- Strong *social and moral understanding* was directly associated with lower involvement with both substance use and violence/delinquency.
- Groups of middle school students who *perceived their communities as riskier* were also more involved with both substance use and violence/delinquency. Higher community risk was also associated with lower social and moral understanding.
- Groups with low *commitment to school* were more involved with substance use. At this age, however, commitment to school did not relate directly to violence/delinquency.

High School: In high school, risk-and-protective factors significantly impacted both substance use and violence/delinquency. In addition, we found direct links between risk factors and test scores.

- As in middle school, *social and moral understanding* was directly linked to attitudes about both substance use and violence/delinquency. Furthermore, high levels of *social skills* were directly linked to lower levels of substance use.
- Groups of high school students who *perceived their communities as risky* had lower test scores (a direct effect). They also had higher levels of violent and delinquent behavior.
- As in middle school, *school commitment* influenced both attitudes and behavior. Low commitment to school was associated with more substance use and more positive attitudes towards both substance use and violence/delinquency. School commitment also appears to have a complex relationship with test scores that could not be fully explored in this study.

How Widespread Are Substance Use and Violence/Delinquency Among Washington Students?

Findings from the 2000 Washington State Survey of Adolescent Health Behaviors (RMC, 2001) provide context for our group analyses. If only a few Washington students are involved in these behaviors, then our policies should be narrowly targeted. The 2000 WSSAHB found, however, that 20 to 40 percent of Washington middle school and high school students reported the kinds of attitudes and behaviors that our analyses linked to impaired school performance.

We cannot stress enough that individual students with these attitudes and behaviors are not concentrated in a few groups, but are distributed throughout schools, communities, and social groups all over the state. Peer influence is never more powerful than during adolescence. Given the high prevalence of these harmful attitudes and behaviors among individual students, it is impossible to prevent their broad dissemination. It *is* possible, however, to counter the effects of these attitudes and behaviors with interventions that target the same milieu – the social environment – where students encounter and must make their own decisions about substance use and violence/delinquency.

What Are the Policy Implications of These Findings?

(1) To Improve Test Scores We Must Address Both Attitudes and Behaviors Related to Substance Use and Violence/Delinquency.

If we are to assure that every student receives a sound education, we must reduce students' involvement with alcohol/drugs and violence/delinquency. We found that, within groups of middle and high school students, even low to moderate involvement with these behaviors is associated with serious decrements in test scores. The relationship between test scores and harmful behaviors/attitudes is strong even when such important factors as gender, race-ethnicity, and poverty are taken into account.

(2) Our Efforts Need to Be Broad-based, Looking Outside the Classroom and Engaging the Community.

This report shows conclusively that factors *outside the realm of classroom instruction* significantly impact academic achievement. Our study also confirms, at the group level, that specific risk-and-protective factors affect the degree to which groups of students are involved with harmful behaviors. These factors include moral beliefs and social skills, as well as the stability or disorganization of the community. Efforts to improve school performance should therefore address the learning environment *outside* the classroom – including individual, family, and community components of that environment. These efforts should focus on *groups of students* as well as on individuals with harmful attitudes and behaviors. The importance of focusing on the social environment is underscored by the Surgeon General's assertion that, "in schools, interventions that target change in the social context appear to be more effective, on average, than those that attempt to change individual attitudes, skills, and risk behaviors" (U.S. Department of Health and Human Services, 2001).

(3) Intervention Needs to Start When Students Are Young and Continue Through High School.

Because the percentage of students engaged in harmful behavior increases from middle - to high school, prevention programs should start no later than 6th grade and continue through high school. There are significant differences in the ways that various risk-and-protective factors play out for middle school versus high school students. We must understand these differences in order to design programs appropriate to the needs of children at each grade level. Across the state, 20 to 40 percent of individual students have reported involvement with substance use and/or violence/delinquency, indicating both the urgency of the problem and the need for action on a large scale.

Notes on Measures and Analyses

The Washington State Survey of Adolescent Health Behaviors asks a wide range of questions about students' use of harmful substances and about their attitudes regarding substance use. We elaborate on these measures in Figure 3.

Figure 3: Measures of Involvement With Substance Use and Violence/Delinquency

Substance Use	Violence/delinquency
<ul style="list-style-type: none"> • <i>Behavioral Component</i> <ul style="list-style-type: none"> ○ Alcohol Use (Never, In life but not in past 30 days, In last 30 days, 10+ times in 30 days) ○ Drug Use (Never, In life but not in past 30 days, In last 30 days, 10+ times in 30 days) • <i>Attitudinal Component</i> <ul style="list-style-type: none"> ○ Attitude towards substances ○ Perception of local substance laws ○ Perception of substance availability 	<ul style="list-style-type: none"> • <i>Behavioral Component</i> <ul style="list-style-type: none"> ○ Violent Behaviors (None in last year, One-two in last year, Three+ or one behavior 10 times in last year) ○ Delinquent Behaviors (None in last year, One-two in last year, Three+ or one behavior 10 times in last year) ○ Carry Weapon in School (Never, In life but not past year, In last year, In last month) ○ Antisocial Behavior (Rating scale consisting of several antisocial behaviors) • <i>Attitudinal Component</i> <ul style="list-style-type: none"> ○ Rebelliousness ○ Impulsiveness ○ Antisocial Attitudes ○ Time of First Antisocial Behavior (In high school only)

Because the attitudinal and behavioral components relating to substance use and violence/delinquency were so tightly linked in our groups of middle school students, we combined these attitudinal and behavioral components into factors called “Substance Use Involvement” and “Violence/Delinquency Involvement,” and used these combined factors in our analyses of test scores. For high school students, behavior and attitudes are closely correlated, but to a lesser degree, so we treated them separately in our analyses.

The analyses reported here were conducted using Structural Equation Modeling (SEM). SEM is a statistical process that allows us to explore directional relationships between groups of variables. We estimated the test scores for groups of students at different levels of harmful behavior by using equations derived from the SEM. A complete discussion of the analyses is contained in the full report.

Obtaining Full Report

The full report of this analysis is available online (www.hspc.org) or by calling (206) 685-7613. Additional copies of this report may also be obtained from the Washington State Alcohol/Drug Clearinghouse at 1-800-662-9111 (within Washington State) or 206-725-9696 (within Seattle or outside of Washington State), by e-mail at clearinghouse@adhl.org, or by writing them at 3700 Rainier Avenue South, Suite A, Seattle, Washington 98144.

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